

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 1. (Currently amended) A system for enabling components to transfer
2 data between each other, the system comprising:
3 a processor;
4 a memory;
5 ~~a plurality of components including~~ a first component having comprising a
6 data object;
7 a universal data transfer interface comprising object-oriented mobile code,
8 ~~which can be is transmitted to and~~ between a plurality of components and
9 executed instructions on the plurality of component to facilitate file access and
10 printing to the components without knowledge of the components' file system
11 protocols or printer domain protocols, prior to initiating a data transfer; transfer,
12 wherein the data object controls the universal data transfer
13 interface,
14 wherein the instructions return a data type supported by the first
15 component, and device type and operating status of the first component,
16 thereby facilitating the first component to negotiate with a second
17 component to select a transfer medium for transferring data between the
18 first and second components based on the data type;
19 an intermediary a second component configured to capable of receiving
20 the data object and invoking invoke the universal data transfer interface to cause
21 request for and receive a data transfer session object (DTSO) and to transfer the

22 ~~DTSO~~ to be sent to the second component, wherein the second component acts as
23 ~~an intermediary component, which facilitates transferring of the DTSO from the~~
24 ~~first component to a third component;~~
25 wherein the DTSO includes source-specific object-oriented mobile
26 code that ~~can be~~ is interpreted and ~~executed~~ performed by the ~~first~~ second
27 ~~component or the third component; and~~
28 wherein the DTSO is ~~capable of being invoked by the third~~ second
29 component to transfer the data between the first component and the ~~third~~
30 second component; ~~wherein the DTSO includes instructions to return~~
31 ~~data types supported by the first component;~~
32 ~~wherein the DTSO includes instructions that enable the first~~
33 ~~component to receive asynchronous event notifications;~~
34 ~~wherein the DTSO includes instructions to return device type and~~
35 ~~operating status of the first component; and~~
36 ~~wherein the DTSO includes instructions to enable the first~~
37 ~~component or the third component to negotiate with each other to select a~~
38 ~~transfer medium to use to transfer data based upon the type of data.~~

1 2. (Cancelled)

1 3. (Currently amended) The system as set forth in claim 1 wherein the
2 ~~third~~ second component sends a second DTSO to the first component to be used
3 by the first component for receiving data transmitted from the third component.

1 4. (Currently amended) The system as set forth in claim 1 wherein the
2 ~~third~~ second component receives the DTSO from the first component to be used
3 by the third component for receiving data transmitted from the first component.

1 5. (Cancelled)

1 6. (Cancelled)

1 7. (Currently amended) The system as set forth in claim 1 wherein the
2 DTSO is configured to indicate completion responsive to expiration of a data
3 transfer lease by the first component or by the ~~third~~ second component, or
4 responsive to the first component or to the ~~third~~ second component indicating that
5 the data transfer has completed or failed.

1 8. (Currently amended) A system for enabling components to transfer data
2 between each other, the system comprising:
3 a processor;
4 a memory;
5 a first component ~~having comprising~~ a first data object;
6 a second component ~~having comprising~~ a second data object;
7 a first universal data transfer interface comprising object-oriented mobile
8 code, which ~~can be~~ is transmitted ~~to and~~ between a plurality of components and
9 executed instructions on the ~~plurality of component~~ to facilitate file access and
10 printing to the components ~~without knowledge of the second component's file~~
11 system protocols or printer domain protocols, wherein the first data object
12 controls the first universal data transfer ~~interface;~~ interface,
13 wherein the instructions return a data type supported by the first
14 component, and device type and operating status of the first component,
15 thereby facilitating the first component to negotiate with another
16 component to select a transfer medium for transferring data based on the
17 data type;

18 a second universal data transfer interface ~~which does not have a priori~~
19 ~~knowledge of the first component's domain specific file system domain or printer~~
20 ~~domain protocols~~, wherein the second data object controls the second universal
21 data transfer interface; and
22 an intermediary a third component configured to invoke ~~capable of~~
23 ~~receiving the first data object and the second data object, and invoking the first~~
24 universal data transfer interface and the second universal data transfer interface to
25 use request for and receive a data transfer session object (DTSO) and to transfer
26 data between the first component and the second component ~~when the first~~
27 ~~component has data to transfer to the second component, wherein the third~~
28 ~~component acts as an intermediary component, which facilitates transferring of~~
29 ~~the DTSO from the first component to the second component;~~
30 wherein the DTSO includes source-specific object-oriented mobile
31 code that ~~can be~~ is interpreted and executed ~~performed~~ by the first
32 component or the third component;
33 ~~wherein the DTSO includes instructions to return data types~~
34 ~~supported by the first component;~~
35 ~~wherein the DTSO includes instructions that enable the first~~
36 ~~component to receive asynchronous event notifications;~~
37 ~~wherein the DTSO includes instructions to return device type and~~
38 ~~operating status of the first component; and~~
39 ~~wherein the DTSO includes instructions to enable the first~~
40 ~~component to negotiate with the second component to select a transfer~~
41 ~~medium to use to transfer data based upon the type of data.~~

1 9. (Currently amended) The system as set forth in claim 8 wherein the
2 ~~third intermediary~~ component sends the DTSO to the first component to be used
3 by the first component for receiving data transmitted from the second component.

1 10. (Currently amended) The system as set forth in claim 8 wherein the
2 ~~third intermediary~~ component sends the DTSO to the second component to be
3 used by the second component for receiving data transmitted from the first
4 component.

1 11. (Previously presented) The system as set forth in claim 8 wherein the
2 DTSO is configured to indicate completion responsive to expiration of a data
3 transfer lease by the first component or the second component, or responsive to
4 the first component or the second component indicating that the data transfer has
5 completed or failed.

1 12. (Currently amended) A method for enabling a plurality of
2 components to transfer data between each other, the method comprising:
3 invoking, with ~~a second~~ an intermediary component ~~having~~
4 comprising a data object that implements a universal data transfer interface,
5 the universal data transfer interface of a first component ~~of a plurality of~~
6 ~~components~~ to request for and receive ~~cause~~ a data transfer session object
7 (DTSO) and to transfer the DTSO ~~to be sent to the second intermediary~~
8 component, ~~wherein the second component acts as an intermediary~~
9 ~~component, which facilitates transferring of the DTSO from the first~~
10 ~~component to a third component;~~ and
11 invoking the DTSO with ~~the third~~ a second component to transfer data
12 between the first component and the ~~third~~ second component, ~~when the first~~
13 ~~component has data to transfer to the third component;~~
14 wherein the universal data transfer interface comprising object-
15 oriented mobile code, which ~~can be~~ is transmitted ~~to and~~ between a
16 plurality of components and executed instructions on the ~~plurality of~~
17 component to facilitate file access and printing to the components ~~without~~

18 ~~knowledge of the components' file system protocols or printer domain~~
19 ~~protocols, prior to initiating a data transfer;~~
20 wherein the instructions return a data type supported by the first
21 component, and device type and operating status of the first component,
22 thereby facilitating the first component to negotiate with a second
23 component to select a transfer medium for transferring data between the
24 first and second components based on the data type; and
25 wherein the DTSO includes source-specific object-oriented mobile
26 code that ~~can be~~ is interpreted and ~~executed performed~~ by the ~~first second~~
27 ~~component or the third component;~~
28 ~~wherein the DTSO includes instructions to return data types~~
29 ~~supported by the first component;~~
30 ~~wherein the DTSO includes instructions that enable the first~~
31 ~~component to receive asynchronous event notifications;~~
32 ~~wherein the DTSO includes instructions to return device type and~~
33 ~~operating status of the first component;~~
34 ~~wherein the DTSO includes instructions to enable the first~~
35 ~~component or the third component to negotiate with each other to select a~~
36 ~~transfer medium to use to transfer data based upon the type of data; and~~
37 ~~wherein a session associated with data transfer is leased subject to~~
38 ~~periodic renewal by the first component at an interval of time specified by~~
39 ~~an initial lease duration parameter.~~

1 13. (Cancelled)

1 14. (Currently amended) The method as set forth in claim 12 further
2 comprising sending a second DTSO to the first component to be used by the first
3 component for receiving data transmitted from the ~~third~~ intermediary component.

1 15. (Currently amended) The method as set forth in claim 12 further
2 comprising receiving the DTSO from the first component to be used by the ~~third~~
3 intermediary component for receiving data transmitted from the first component.

1 16. (Cancelled)

1 17. (Cancelled)

1 18. (Previously presented) The method as set forth in claim 12 further
2 comprising configuring the DTSO to indicate completion responsive to expiration
3 of a data transfer lease by the first component or by the third component, or
4 responsive to the first component or to the third component indicating that the
5 data transfer has completed or failed.

1 19. (Currently amended) A method for enabling components to
2 transfer data between each other, the method comprising:
3 invoking a first universal data transfer interface of a first data object
4 belonging to a first component and a second universal data transfer interface of a
5 second data object belonging to a second component when the first component
6 has data to transfer to the second component, wherein the second component acts
7 as an intermediary component, which facilitates transferring of the DTSO from
8 the first component to a third component;
9 obtaining a data transfer session object (DTSO) from one of the invoked
10 first universal data transfer interface or the second universal data transfer
11 interface; and
12 using the DTSO to transfer data between the first component and the
13 second component;

14 wherein the universal data transfer interface comprising object-
15 oriented mobile code, which ~~can be~~ is transmitted ~~to and~~ between a
16 plurality of components and executed instructions on the plurality of
17 component to facilitate file access and printing to the components ~~without~~
18 ~~knowledge of the components' file system protocols or printer domain~~
19 ~~protocols~~, prior to initiating a data transfer;

20 wherein the instructions return a data type supported by the first
21 component, and device type and operating status of the first component,
22 thereby facilitating the first component to negotiate with the second
23 component to select a transfer medium for transferring data between the
24 first and second components based on the data type; and

25 wherein the DTSO includes source-specific object-oriented mobile
26 code that ~~can be~~ is interpreted and executed ~~performed~~ by the first-second
27 ~~component or the third component;~~

28 ~~wherein the DTSO includes instructions to return data types~~
29 ~~supported by the first component;~~

30 ~~wherein the DTSO includes instructions that enable the first~~
31 ~~component to receive asynchronous event notifications;~~

32 ~~wherein the DTSO includes instructions to return device type and~~
33 ~~operating status of the first component;~~

34 ~~wherein the DTSO includes instructions to enable the first~~
35 ~~component or the third component to negotiate with each other to select a~~
36 ~~transfer medium to use to transfer data based upon the type of data; and~~

37 ~~wherein a session associated with data transfer is leased subject to~~
38 ~~periodic renewal by the first component at an interval of time specified by~~
39 ~~an initial lease duration parameter.~~

1 20. (Previously presented) The method as set forth in claim 19 further

2 comprising sending the DTSO to the first component to be used by the first
3 component for receiving data transmitted from the second component.

1 21. (Previously presented) The method as set forth in claim 19 further
2 comprising sending the DTSO to the second component to be used by the second
3 component for receiving data transmitted from the first component.

1 22. (Previously presented) The method as set forth in claim 19 further
2 comprising configuring the DTSO to indicate completion responsive to expiration
3 of a data transfer lease by the first component or by the third component, or
4 responsive to the first component or to the third component indicating that the
5 data transfer has completed or failed.

1 23. (Currently amended) A computer readable medium having stored
2 thereon instructions for enabling components to transfer data between each other,
3 which when executed by one or more processors, causes the processors to
4 perform:
5 invoking, with ~~a second~~ an intermediary component ~~having~~
6 comprising a data object that implements a universal data transfer interface,
7 the universal data transfer interface of a first component ~~of a plurality of~~
8 ~~components~~ to request for and receive ~~cause~~ a data transfer session object
9 (DTSO) and to transfer the DTSO ~~to be sent to the second intermediary~~
10 component, ~~wherein the second component acts as an intermediary~~
11 ~~component, which facilitates transferring of the DTSO from the first~~
12 ~~component to a third component;~~ and
13 invoking the DTSO with ~~the third~~ a second component to transfer data
14 between the first component and the ~~third~~ second component, ~~when the first~~
15 ~~component has data to transfer to the third component;~~

16 wherein the universal data transfer interface comprising object-
17 oriented mobile code, which ~~can be~~ is transmitted ~~to and~~ between a
18 plurality of components and executed instructions on the plurality of
19 component to facilitate file access and printing to the components ~~without~~
20 ~~knowledge of the components' file system protocols or printer domain~~
21 ~~protocols~~, prior to initiating a data transfer;

22 wherein the instructions return a data type supported by the first
23 component, and device type and operating status of the first component,
24 thereby facilitating the first component to negotiate with a second
25 component to select a transfer medium for transferring data between the
26 first and second components based on the data type; and

27 wherein the DTSO includes source-specific object-oriented mobile
28 code that ~~can be~~ is interpreted and ~~executed~~ performed by the ~~first~~ second
29 ~~component or the third component;~~

30 ~~wherein the DTSO includes instructions to return data types~~
31 ~~supported by the first component;~~

32 ~~wherein the DTSO includes instructions that enable the first~~
33 ~~component to receive asynchronous event notifications;~~

34 ~~wherein the DTSO includes instructions to return device type and~~
35 ~~operating status of the first component;~~

36 ~~wherein the DTSO includes instructions to enable the first~~
37 ~~component or the third component to negotiate with each other to select a~~
38 ~~transfer medium to use to transfer data based upon the type of data; and~~

39 ~~wherein a session associated with data transfer is leased subject to~~
40 ~~periodic renewal by the first component at an interval of time specified by~~
41 ~~an initial lease duration parameter.~~

1 24. (Cancelled)

1 25. (Currently amended) The medium as set forth in claim 23 further
2 comprising sending a second DTSO to the first component to be used by the first
3 component for receiving data transmitted from the ~~third~~ intermediary component.

1 26. (Currently amended) The medium as set forth in claim 23 further
2 comprising receiving the DTSO from the first component to be used by the ~~third~~
3 intermediary component for receiving data transmitted from the first component.

1 27. (Cancelled)

1 28. (Cancelled)

1 29. (Previously presented) The medium as set forth in claim 23 further
2 comprising configuring the DTSO to indicate completion responsive to expiration
3 of a data transfer lease by the first component or by the third component, or
4 responsive to the first component or to the third component indicating that the
5 data transfer has completed or failed.

1 30. (Currently amended) A computer readable medium having stored
2 thereon instructions for enabling components to transfer data between each other,
3 which when executed by one or more processors, causes the processors to
4 perform:
5 invoking a first universal data transfer interface of a first data object
6 belonging to a first component and a second universal data transfer interface of a
7 second data object belonging to a second component when the first component
8 has data to transfer to the second component, wherein the second component acts
9 as an intermediary component, which facilitates transferring of the DTSO from
10 the first component to a third component;

11 obtaining a data transfer session object (DTSO) from one of the invoked
12 first universal data transfer interface or the second universal data transfer
13 interface; and
14 using the DTSO to transfer data between the first component and the
15 second component;
16 wherein the universal data transfer interface comprising object-
17 oriented mobile code, which ~~can be~~ is transmitted ~~to and~~ between a
18 plurality of components and executed instructions on the plurality of
19 component to facilitate file access and printing to the components without
20 knowledge of the components' file system protocols or printer domain
21 protocols, prior to initiating a data transfer;
22 wherein the instructions return a data type supported by the first
23 component, and device type and operating status of the first component,
24 thereby facilitating the first component to negotiate with the second
25 component to select a transfer medium for transferring data between the
26 first and second components based on the data type; and
27 wherein the DTSO includes source-specific object-oriented mobile
28 code that ~~can be~~ is interpreted and executed ~~performed~~ by the first ~~second~~
29 ~~component or the third component;~~
30 wherein the DTSO ~~includes instructions to return data types~~
31 ~~supported by the first component;~~
32 wherein the DTSO ~~includes instructions that enable the first~~
33 ~~component to receive asynchronous event notifications;~~
34 wherein the DTSO ~~includes instructions to return device type and~~
35 ~~operating status of the first component;~~
36 wherein the DTSO ~~includes instructions to enable the first~~
37 ~~component or the third component to negotiate with each other to select a~~
38 ~~transfer medium to use to transfer data based upon the type of data; and~~

39 ~~wherein a session associated with data transfer is leased subject to~~
40 ~~periodic renewal by the first component at an interval of time specified by~~
41 ~~an initial lease duration parameter.~~

1 31. (Previously presented) The medium as set forth in claim 30 further
2 comprising sending the DTSO to the first component to be used by the first
3 component for receiving data transmitted from the second component.

1 32. (Previously presented) The medium as set forth in claim 30 further
2 comprising sending the DTSO to the second component to be used by the second
3 component for receiving data transmitted from the first component.

1 33. (Previously presented) The medium as set forth in claim 30 further
2 comprising configuring the DTSO to indicate completion responsive to expiration
3 of a data transfer lease by the first component or by the third component, or
4 responsive to the first component or to the third component indicating that the
5 data transfer has completed or failed.